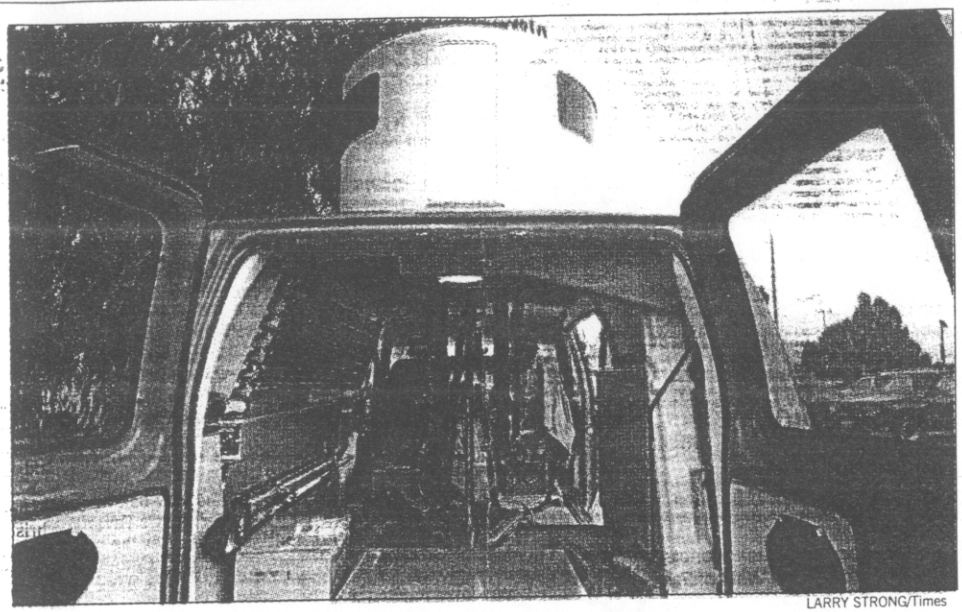
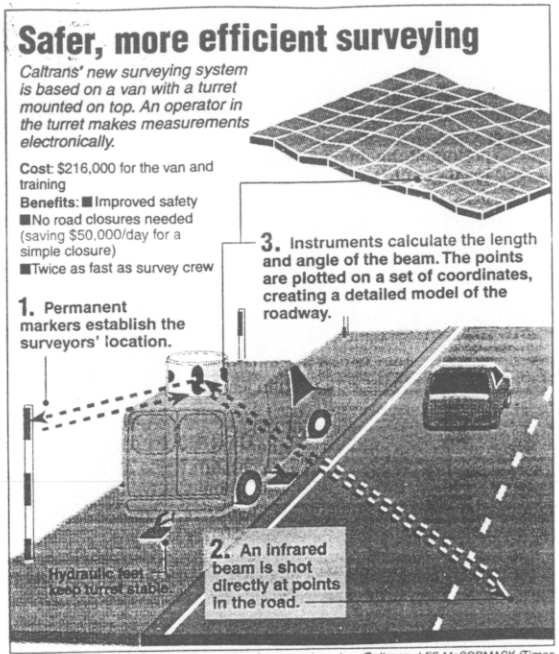


LARRY STRONG/Times

A VIEW through open rear doors of Caltrans' new turret van, equipped to survey road surfaces. The van, including training, costs about $216,000 and operates with two surveyors.



Source: Mark Turner, branch chief for right-of-way engineering, Caltrans LEE McCORMACK/Times

Turret van paves way to road repair

Caltrans vehicle reduces need to close freeway lanes, put workers in danger

By ROBERT OAKES
Staff writer

OAKLAND — Fed up with those darn freeway lane closures? A strange-looking van could help.

The bright orange Vangarde 505 carries a big cylindrical turret, which houses an infrared sensor device. It looks like a giant camera on wheels.

A two-person surveying crew can park alongside a highway and check pavement conditions without shutting lanes. No more traffic backups. No more long delays. The van takes accurate readings while vehicles zoom past.

Standard surveys require closing a lane and making crews stand next to traffic, where they risk getting clipped by a car bumper or flattened by an 18-wheeler.

"We're not closing any lanes. You can see a huge benefit there," said Stan Schram, a Caltrans assistant land surveyor. "And we're not risking anyone's life. An orange rubber cone is not going to stop an oncoming car."

Schram surveyed a Santa Clara County freeway a few weeks ago when a wayward semi rig plowed through 1,500 feet of traffic cones before veering out of the closed lane.

"All I saw were these big tires that said 'Michelin,' " Schram said.

In a typical survey, one person holds a pole mounted with a reflective prism. Another worker aims a camera-like device. And another person serves as a lookout.

Lanes are closed to protect the crew, and motorists get stuck in traffic.

Drivers endure an average of 200 daily lane closures in the nine Bay Area counties, mostly for construction and maintenance. Surveys account for less than 5 percent of all lane shutdowns.

"Even 5 percent, to the person who gets caught in it, is a big difference," said Mark Turner, Caltrans district branch chief of right of way engineering.

Regional drivers last year wasted a whopping $659,000 while stuck in freeway congestion instead of working, the agency estimated. That's just typical rush-hour traffic.

There's no estimate for earning power lost to survey lane closures. But costs add up for taxpayers. Shutting a lane for any reason costs the state $6,000 per day for each mile. A simple closure can cost $50,000.

The remote-sensing van including training costs about $216,000 and operates with just two surveyors.

An Irvine company developed the van. Only a few are in use in the United States. An engineering firm used one to plan an extension line in 1993 for the Washington, D.C., Metro subway system.

Caltrans tested one remote-sensing vehicle in Southern California, and results proved so successful the agency ordered another van. Measurements proved as accurate or better than standard methods, Schram said.

Bay Area crews got their vehicle in August, and they're already booked solid with surveying jobs. The other rig operates mostly in San Bernardino County.

Why survey freeways?

Traffic can chip, crack or create flaws in lane surfaces. Flaws might be just an inch or two deep, but that's enough to make a puddle during rainy season. Puddles create the risk of hydroplaning, when vehicle tires skim on the water. Drivers might lose control and crash.

Crews need to know the exact location of flaws to repave or improve drainage.

The van turret rotates and shoots the infrared beam to measure distances from pavement. A computer collects data about pavement elevation and other features, allowing crews to make detailed calculations on the spot, said Keith Nofield, assistant land surveyor.

Survey crews are also safer inside a two-ton steel vehicle.

Bay Area surveyors suffered 32 injuries while involved in 71 vehicle accidents from 1990 to 1995, according to Caltrans. Twenty-nine Caltrans workers in the region, including four surveyors, were killed on the job in the past 40 years.

"I can't tell you how much better I feel to be off the lanes," Schram said.